

Non-Intrusive Inspection of Buried Pipelines

Guided Wave Technology

-  **Client**
Oil & Gas Operator
-  **Location**
Refinery, UK
-  **HSEQ**
No loss of time incidents

Project Overview

During a recent project at an oil & gas refinery, our client required an accurate assessment of a potentially corroded pipeline, located beneath an active roadway, without incurring the high costs of an extensive excavation. To reduce production downtime and maintain cost-efficiency, the team collaborated closely with the client to deliver a quicker, more advanced solution, Guided Wave.

The Challenge

The location of the pipeline presented difficulties, an extensive and disruptive excavation process was not a viable option. The challenge was to inspect the buried pipeline for corrosion without disrupting operations or road access.



Photo: Bitumen coated buried sections



Photo: Corrosion on a 45° bend

Through our partnership approach, we deliver comprehensive support and a complete range of inspection and Non-Destructive Testing (NDT) services during every stage of an asset's lifetime - from fabrication through to decommissioning.

We focus on utilising innovative techniques that meet the evolving needs of our clients. Our team of level 3 qualified technical experts explore new ideas and transform them into operational solutions.

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The Solution

To overcome these challenges, we implemented Guided Wave technology, a non-intrusive method for inspecting pipelines. This technique uses low-frequency torsional waves transmitted along the pipe wall from a single location. Under suitable conditions, Guided Wave can screen up to 230 metres from a single access point. The results highlight potential defects, which can then be confirmed using follow-up methods such as ultrasonic testing (UT), phased array ultrasonic testing (PAUT) or radiography.

From a single excavation point, our team were able to inspect extensive sections of the pipeline for changes in a cross-sectional area that could indicate corrosion or other damage. This initial screening successfully identified an area of concern.

Our trained inspectors analysed the data and highlighted an area of concern further down the pipeline. An excavation at this location confirmed significant external corrosion, which we were able to quantify with more accurate methods such as phased array ultrasonics. This enabled the client to take corrective action with minimal disruption.

The Conclusion

By utilising Guided Wave technology, the team precisely identified the defect, enabling resources to be focused exactly where they were needed, leading to an efficient and targeted solution.

The method required minimal equipment setup and less surface preparation compared to traditional techniques. This approach saved valuable resources and time, proving its effectiveness in situations where access is restricted and time is critical.

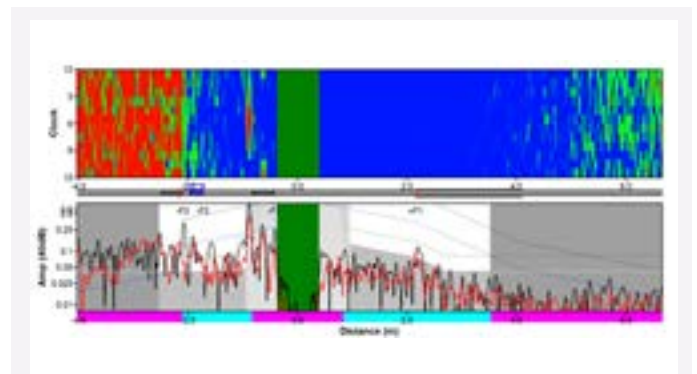


Photo: Data analysis indicating potential corrosion



Photo: Guided Wave technology